

## Remarks/Arguments

### CLAIM REJECTIONS- 35 USC §102

#### CLAIMS 1, 5, 6, and 10

The Examiner is of the view that claims 1, 5, 6, and 10 of the present application should be rejected under 35 USC §102 (e) on the view that they are anticipated by Ren et al., U.S. Patent No. 6,981,877 (“Ren”).

#### CLAIM 1

Claim 1 is:

Direct methanol fuel cell apparatus comprising:

- a fuel container;
- an anode adjacent the fuel container;
- a proton exchange membrane adjacent the anode;
- a cathode adjacent the proton exchange membrane;
- an oxygen supply adjacent the cathode;
- the fuel container containing methanol in water at a first concentration;
- a cartridge selectively communicatively coupled with the fuel container;
- the cartridge containing fluid comprising methanol in water at a second concentration, the second concentration higher than the first concentration.

The Examiner is of the view that Column 5, lines 49-67 of Ren teaches each of the limitations of Claim 1. The undersigned has diligently studied this portion of Ren and is unable to find a disclosure of “an anode adjacent the fuel container”. The undersigned respectfully requests the Examiner to point out exactly where Ren teaches “an anode adjacent the fuel container” or in the alternative withdraw the rejection and allow the claim.

### CLAIM 5

Claim 5 is:

The apparatus of claim 1 wherein the selective communicative coupling comprises a pump actuable by electronic means, said pump pumping fluid from the cartridge to the container.

Claim 5 is dependent on claim 1. If claim one is allowable, claim 5 should also be allowed.

Reconsideration of claim 5 is respectfully requested.

### CLAIM 6

The Examiner has rejected claim 6 on the view that its limitations are disclosed by Ren.

Applicant has amended claim 6. Support for the additional limitation in the amended claim may be found in Fig.3, Fig. 4., and Fig.5 of the present application.

Currently Amended Claim 6 is:

A method for use with a direct methanol fuel cell, the method comprising the steps of:

bringing a first solution of methanol in water at a first concentration into contact with an anode, the first solution contained within a container;

bringing oxygen into contact with a cathode, the cathode adjacent a proton exchange membrane and the proton exchange membrane adjacent the anode;

at a later time, bringing a cartridge into communicative coupling with the container, the volume of the container being greater than the volume of the cartridge, the cartridge containing a second solution of methanol in water at a second concentration, the second concentration higher than the first concentration.

Reconsideration of the rejection of claim 6 is respectfully requested.

### CLAIM 10

Claim 10 is:

The method of claim 6 wherein the step of bringing the cartridge into

communicative coupling with the container comprises actuating a pump, said pump pumping fluid from the cartridge to the container.

Claim 10 depends on Amended Claim 6, if Amended Claim 6 is allowable, Claim 10 should also be allowed. Reconsideration of Claim 10 is respectfully requested.

### **CLAIMS 11-15**

The Examiner is of the view that claims 11-15 of the present application should be rejected under 35 USC §102 (e) on the view that they are anticipated by Beckmann et al, U.S. Patent No. 6,737,181 (“Beckmann”).

### **CLAIM 11**

Claim 11 is:

Direct methanol fuel cell apparatus comprising:

a fuel container;

an anode adjacent the fuel container;

a proton exchange membrane adjacent the anode;

a cathode adjacent the proton exchange membrane;

an oxygen supply adjacent the cathode;

the fuel container containing methanol in water;

and a stirrer within the fuel container.

The Examiner is of the view that Column 3, lines 20-34 of Beckmann teaches the limitation of “a stirrer within the fuel container.” The undersigned has diligently studied this portion of Beckmann and is unable to find a disclosure of a “a stirrer **within** the fuel container.” It appears that Beckmann instead discloses a separate mixing chamber. The undersigned respectfully requests the Examiner to point out exactly where Beckmann discloses a stirrer being **within** the

fuel container, or in the alternative withdraw the rejection and allow the claim.

In addition, the Examiner is of the view that Column 2, lines 26-32 of Beckmann teaches the limitation of “an anode adjacent the fuel container”. The undersigned has diligently studied this portion of Beckmann and is unable to find a disclosure of “an anode adjacent the fuel container.” The undersigned respectfully requests the Examiner to point out exactly where Beckmann discloses “an anode adjacent the fuel container,” or in the alternative withdraw the rejection and allow the claim.

Reconsideration of claim 11 is respectfully requested.

#### CLAIM 12

Claim 12 is:

The apparatus of claim 11 further comprising electronics operating the stirrer at intervals as a function of measurements made regarding the fuel cell apparatus.

Claim 12 is dependent on Claim 11. If Claim 11 is allowable, Claim 12 should also be allowed.

Reconsideration of Claim 12 is respectfully requested.

#### CLAIM 13

Applicant has amended claim 13 to contain the additional limitations of claim 15.

Claim 13 as currently amended is:

A method for use with a direct methanol fuel cell, the method comprising the steps of:

bringing a solution of methanol in water into contact with an anode, the solution contained within a container;

bringing oxygen into contact with a cathode, the cathode adjacent a proton exchange membrane and the proton exchange membrane adjacent the anode;

at a later time, stirring the solution wherein the stirring occurs as a result of stirring by a stirrer contained within the container.

The Examiner rejected claim 15 on the view that Column 4, lines 9-27 of Beckmann disclosed the additional limitation of claim 15. The undersigned has diligently studied this portion of Beckmann and is unable to find a disclosure of the stirring occurring as a result of stirring by a stirrer contained **within** the container. The Applicant respectfully requests the Examiner to point out exactly where in Beckmann it is disclosed that “the stirring occurs as a result of stirring by a stirrer contained within the container,” or in the alternative withdraw the rejection of claim 13 (as amended to include the limitations of claim 15) and allow the claim.

Reconsideration of Claim 13 is respectfully requested.

#### CLAIM 14

The Applicant has amended dependent claim 14 to make it independent by adding the limitations of claim 13 as originally filed.

Claim 14 as currently amended is:

A method for use with a direct methanol fuel cell, the method comprising the steps of:

bringing a solution of methanol in water into contact with an anode, the solution contained within a container;

bringing oxygen into contact with a cathode, the cathode adjacent a proton exchange membrane and the proton exchange membrane adjacent the anode;

at a later time, stirring the solution, wherein the stirring occurs as a result of a human user moving the fuel cell while it is in use.

The Examiner has rejected Claim 14 on the view that Column 2, lines 47-50 of Beckmann disclose “wherein the stirring occurs as a result of a human user moving the fuel cell while it is in

use.”

Column 2, lines 47-50 of Beckmann states:

In water collector 18, water from entering cathodic effluent is collected and recirculated back to the pump or mixing chamber using either passive management, or a pump to induce said recirculation.

The undersigned has diligently studied this portion of Beckmann and is unable to find where it is disclosed that “the stirring occurs as a result of a human user moving the fuel cell while it is in use.” Applicant respectfully requests the Examiner to point out exactly where in this portion of Beckmann, it is disclosed that “the stirring occurs as a result of a human user moving the fuel cell while it is in use,” or in the alternative withdraw the rejection and allow the claim.

Reconsideration of claim 14 is respectfully requested.

#### CLAIM 15

Claim 15 is cancelled.

### **CLAIM REJECTIONS- 35 USC §103**

#### **CLAIMS 2, 3, 7, and 8**

The Examiner is of the view that claims 2, 3, 7, and 8 of the present application should be rejected under 35 USC §103(a) on the view that they are unpatentable over Ren.

#### CLAIMS 2 and 3

Claim 2 and claim 3 depend on claim 1. If claim 1 is allowable, claims 2 and 3 should also be allowed.

In addition, the Examiner rejects claim 2 and claim 3 on the view that “the invention as a whole

would have been obvious to one of ordinary skill in the art at the time the invention was made,” and cites MPEP §2144.05, titled “Optimization of Ranges”.

If Applicant had claimed that the fact of the second concentration being at least double the first concentration (claim 2) or the second concentration being at least triple the first concentration (claim 3) was somehow “optimal,” the citation of MPEP §2144.05 might under some circumstances not be inappropriate. Applicant, however, made no such claim of the concentrations of claim 1 and claim 3 being “optimal.” Therefore the citation to MPEP §2144.05 is inappropriate. Applicant is not claiming the concentrations are optimized, but is merely presenting these limitations to avoid accidental anticipation by inapposite prior art.

If the Examiner insists on persisting in this view that the limitations represent optimization, the Examiner is requested, motivated by the case of *In Re Ahlert and Kruger*, 165 USPQ 418 (CCPA 1970) to provide the basis for this view or in the alternative to withdraw the rejections and allow claim 2 and claim 3.

If, in the alternative, the Examiner holds the view that it is somehow obvious to distinguish over accidental anticipations by means of this factor of two (in claim 2) or factor of three (in claim 3), then motivated by the case of *In Re Ahlert and Kruger*, 165 USPQ 418 (CCPA 1970) to provide the basis for this view or in the alternative to withdraw the rejections and allow claim 2 and claim 3.

Reconsideration of the rejections of claim 2 and claim 3 is respectfully requested.

#### CLAIMS 7 and 8

Claim 7 and claim 8 depend on currently amended claim 6. If currently amended claim 6 is allowable, claims 7 and 8 should also be allowed.

In addition, the Examiner rejects claim 7 and claim 8 on the view that “the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made,” and cites MPEP §2144.05, titled “Optimization of Ranges”.

Applicant repeats the arguments provided above for claim 2 and claim 4 respectively.

Applicant respectfully requests reconsideration of claims 7 and 8.

#### **CLAIMS 4 and 9**

The Examiner is of the view that claims 4 and 9 of the present application should be rejected under 35 USC §103(a) on the view that they are unpatentable over Ren in view of Becerra et al., U.S. Patent Application Publication 2004/0072049 (“Becerra”).

#### **CLAIM 4**

Claim 4 is:

The apparatus of claim 1 wherein the selective communicative coupling comprises a pushing pin actuatable by a human user, said pin puncturing the cartridge.

Claim 4 is dependent on claim 1. If claim 1 is allowable, claim 4 should also be allowed.

Reconsideration of Claim 4 is respectfully requested.

#### **CLAIM 9**

Claim 9 is:

The method of claim 6 wherein the step of bringing the cartridge into communicative coupling with the container comprises a human user pushing a pin, said pin puncturing the cartridge.

Claim 9 depends on currently amended claim 6. If currently amended claim 6 is allowable, claim



9 should also be allowed.

Reconsideration of claim 9 is respectfully requested.

**CLAIMS 16-20**

New claims 16-19 have been added to this application.

For the reasons described above, Applicant respectfully requests that the Examiner reconsider the rejections to the claims of the present application.

Respectfully submitted,

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Date

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